FIG. 1

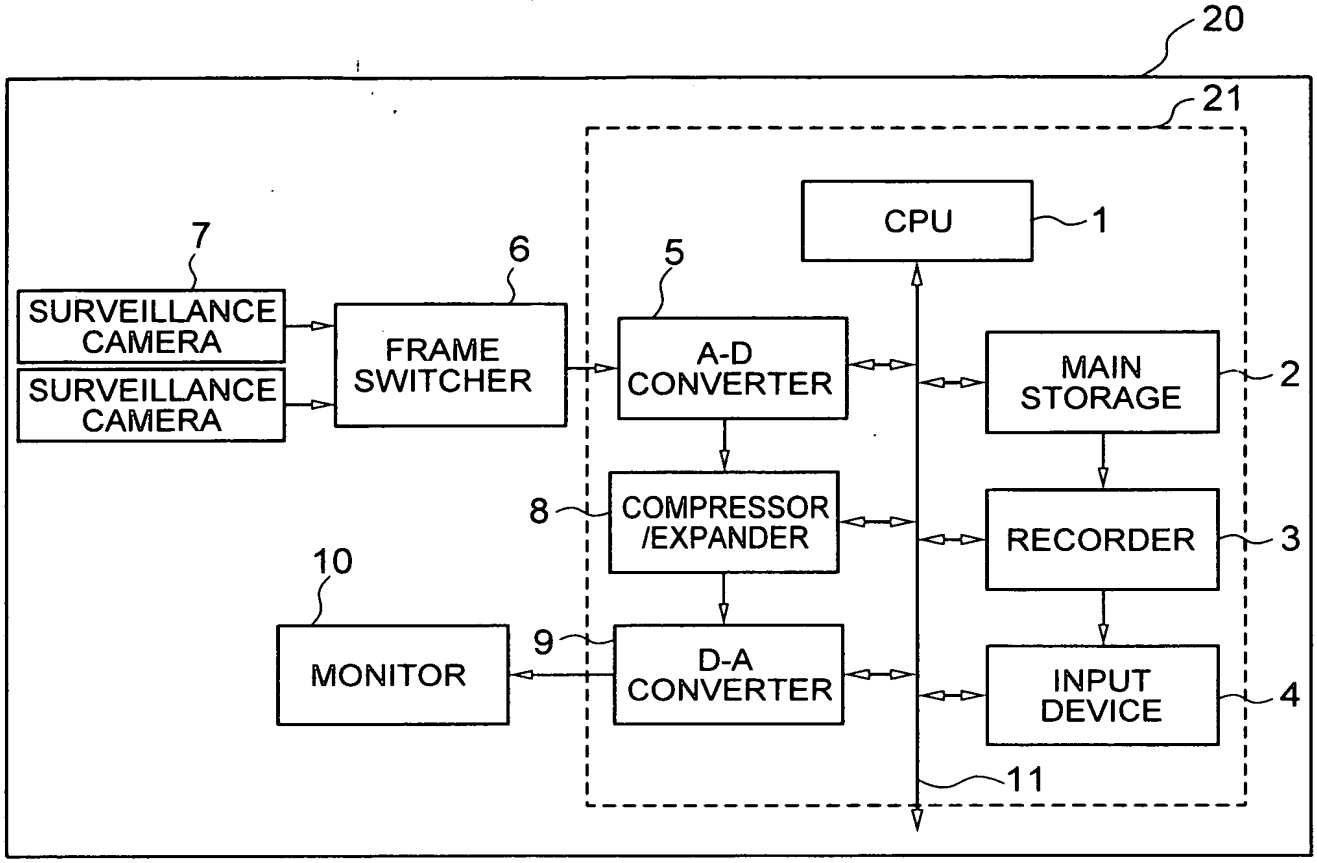

20
21
CPU
1
7
6
5
SURVEILLANCE CAMERA
SURVEILLANCE CAMERA
FRAME SWITCHER
A-D CONVERTER
MAIN STORAGE
2
8
COMPRESSOR /EXPANDER
RECORDER
3
10
MONITOR
9
D-A CONVERTER
INPUT DEVICE
4
11

FIG. 2

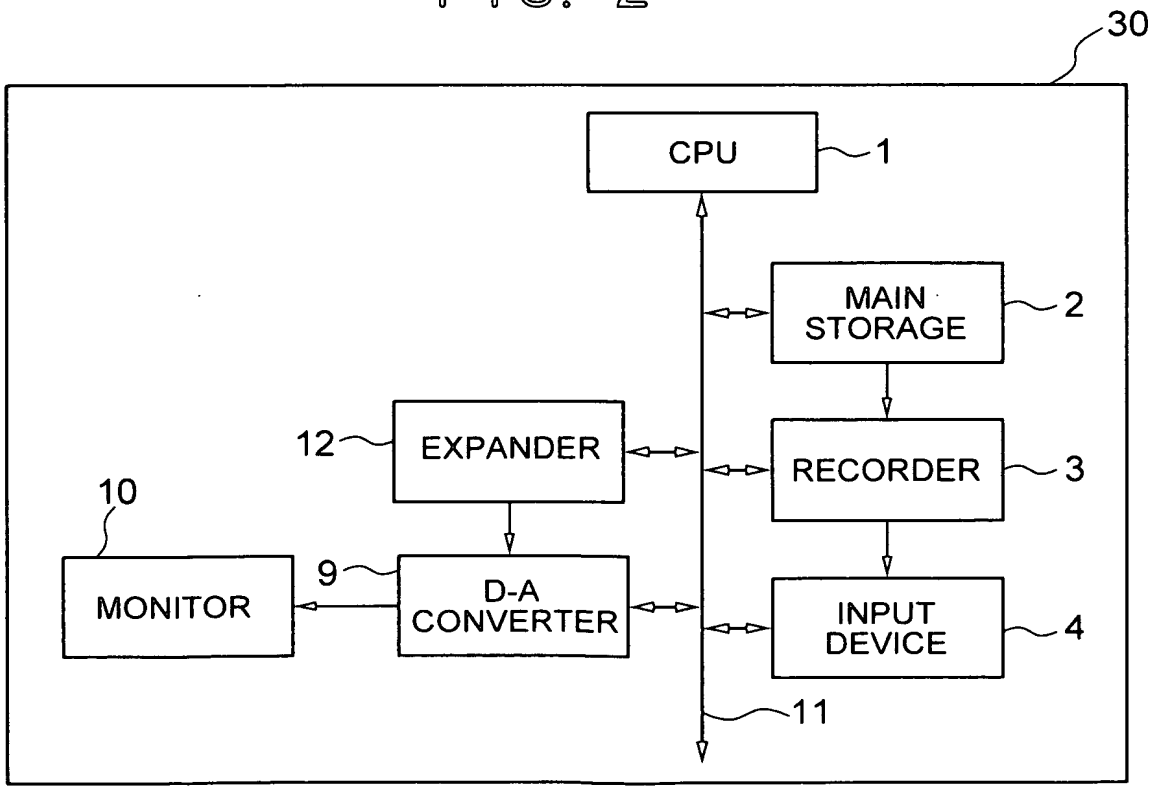

30
CPU
1
MAIN STORAGE
2
12
EXPANDER
RECORDER
3
10
MONITOR
9
D-A CONVERTER
INPUT DEVICE
4
11

FIG. 3A

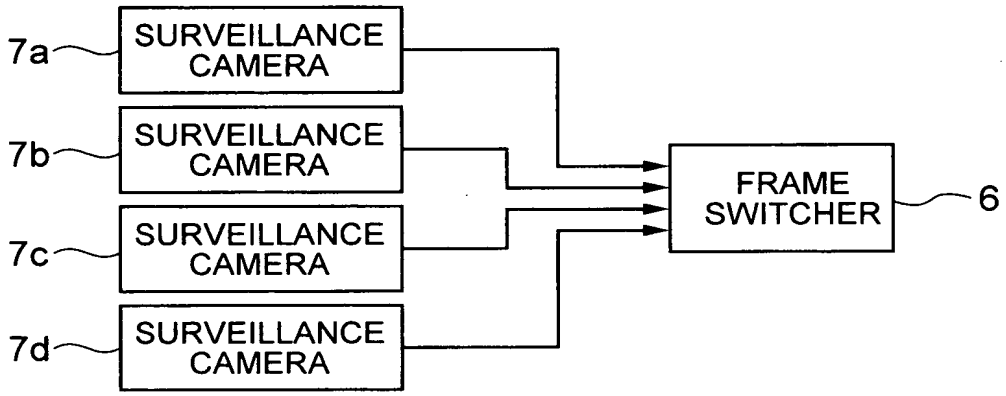


FIG. 3B

VIDEO DATA OUTPUTTED FROM FRAME SWITCHER 6

···	a1	b1	c1	d1	a2	b2	c2	d2	a3	···

a1,a2,a3: IMAGE PICKED UP BY SURVEILLANCE CAMERA 7a

b1,b2: IMAGE PICKED UP BY SURVEILLANCE CAMERA 7b

c1,c2: IMAGE PICKED UP BY SURVEILLANCE CAMERA 7c

d1,d2: IMAGE PICKED UP BY SURVEILLANCE CAMERA 7d

FIG. 4

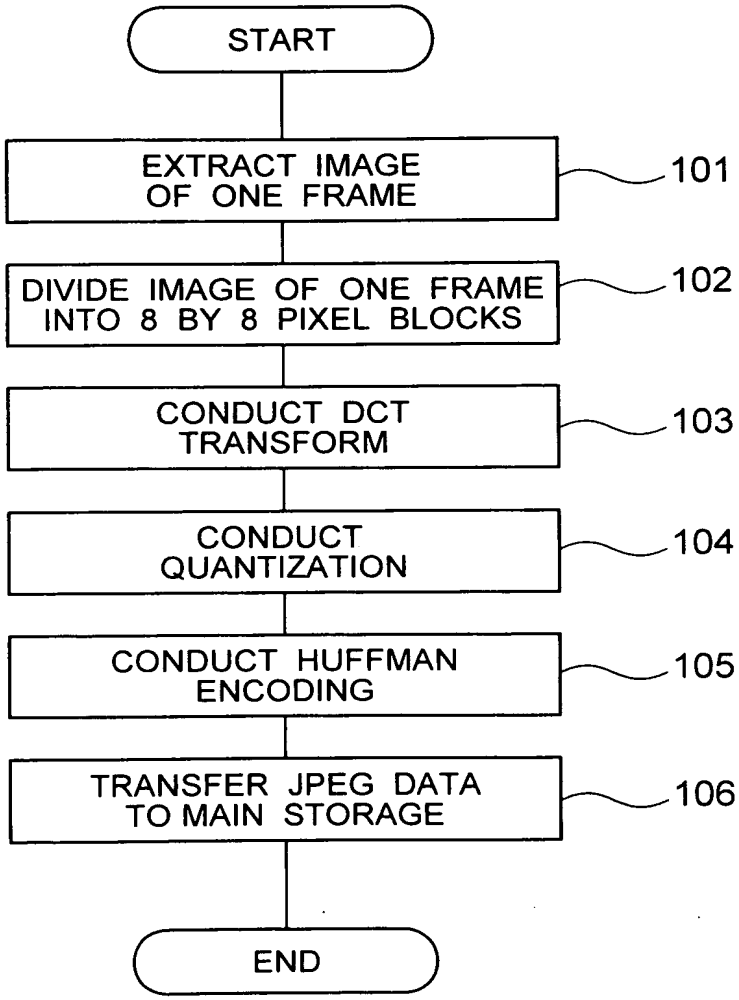

START
EXTRACT IMAGE OF ONE FRAME
101
DIVIDE IMAGE OF ONE FRAME INTO 8 BY 8 PIXEL BLOCKS
102
CONDUCT DCT TRANSFORM
103
CONDUCT QUANTIZATION
104
CONDUCT HUFFMAN ENCODING
105
TRANSFER JPEG DATA TO MAIN STORAGE
106
END

FIG. 5

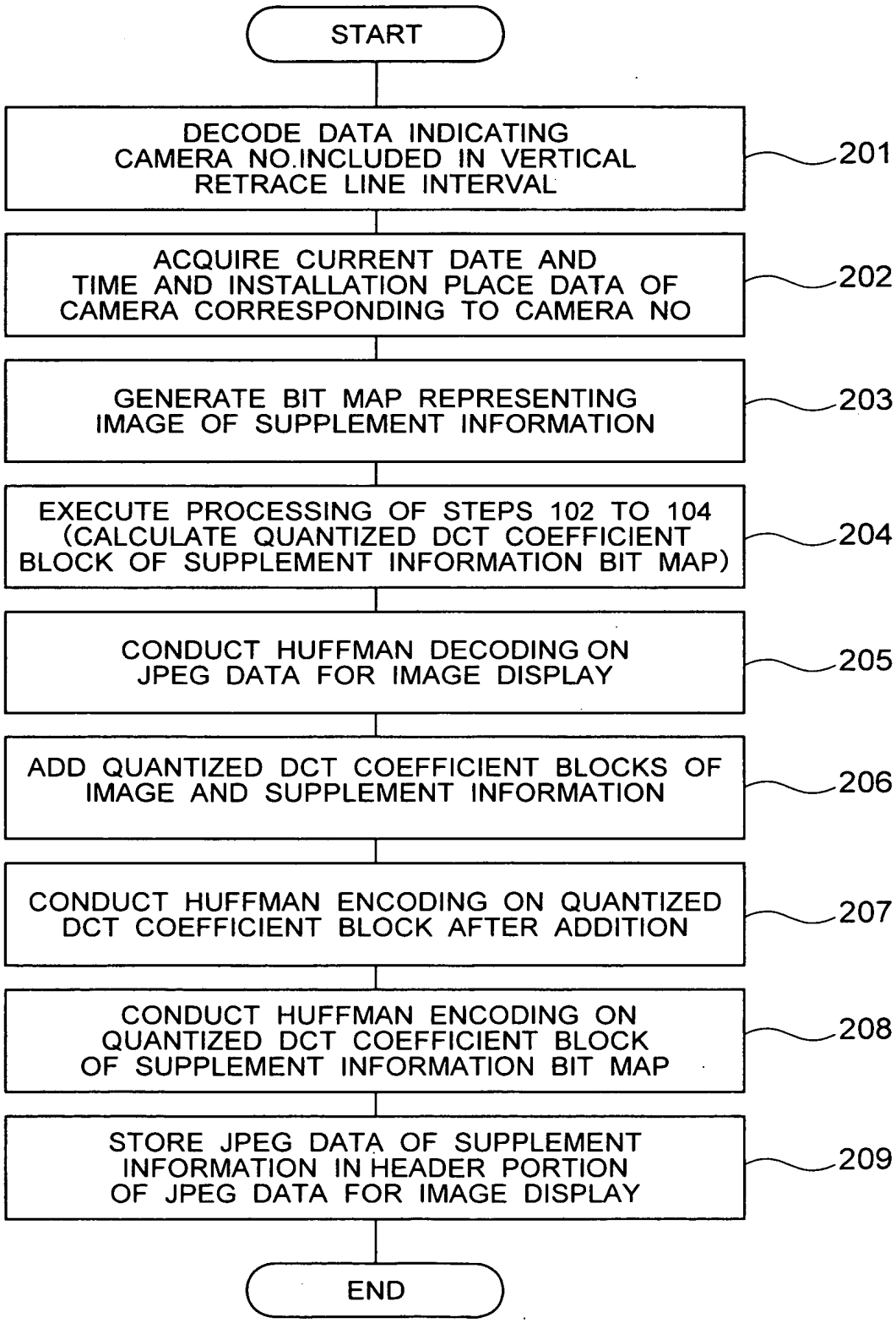

START
DECODE DATA INDICATING CAMERA NO.INCLUDED IN VERTICAL RETRACE LINE INTERVAL
201
ACQUIRE CURRENT DATE AND TIME AND INSTALLATION PLACE DATA OF CAMERA CORRESPONDING TO CAMERA NO
202
GENERATE BIT MAP REPRESENTING IMAGE OF SUPPLEMENT INFORMATION
203
EXECUTE PROCESSING OF STEPS 102 TO 104 (CALCULATE QUANTIZED DCT COEFFICIENT BLOCK OF SUPPLEMENT INFORMATION BIT MAP)
204
CONDUCT HUFFMAN DECODING ON JPEG DATA FOR IMAGE DISPLAY
205
ADD QUANTIZED DCT COEFFICIENT BLOCKS OF IMAGE AND SUPPLEMENT INFORMATION
206
CONDUCT HUFFMAN ENCODING ON QUANTIZED DCT COEFFICIENT BLOCK AFTER ADDITION
207
CONDUCT HUFFMAN ENCODING ON QUANTIZED DCT COEFFICIENT BLOCK OF SUPPLEMENT INFORMATION BIT MAP
208
STORE JPEG DATA OF SUPPLEMENT INFORMATION IN HEADER PORTION OF JPEG DATA FOR IMAGE DISPLAY
209
END

FIG. 6

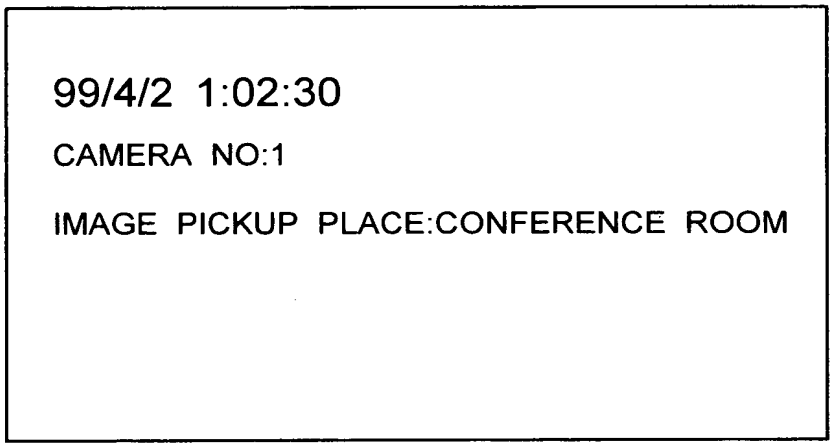


FIG. 7

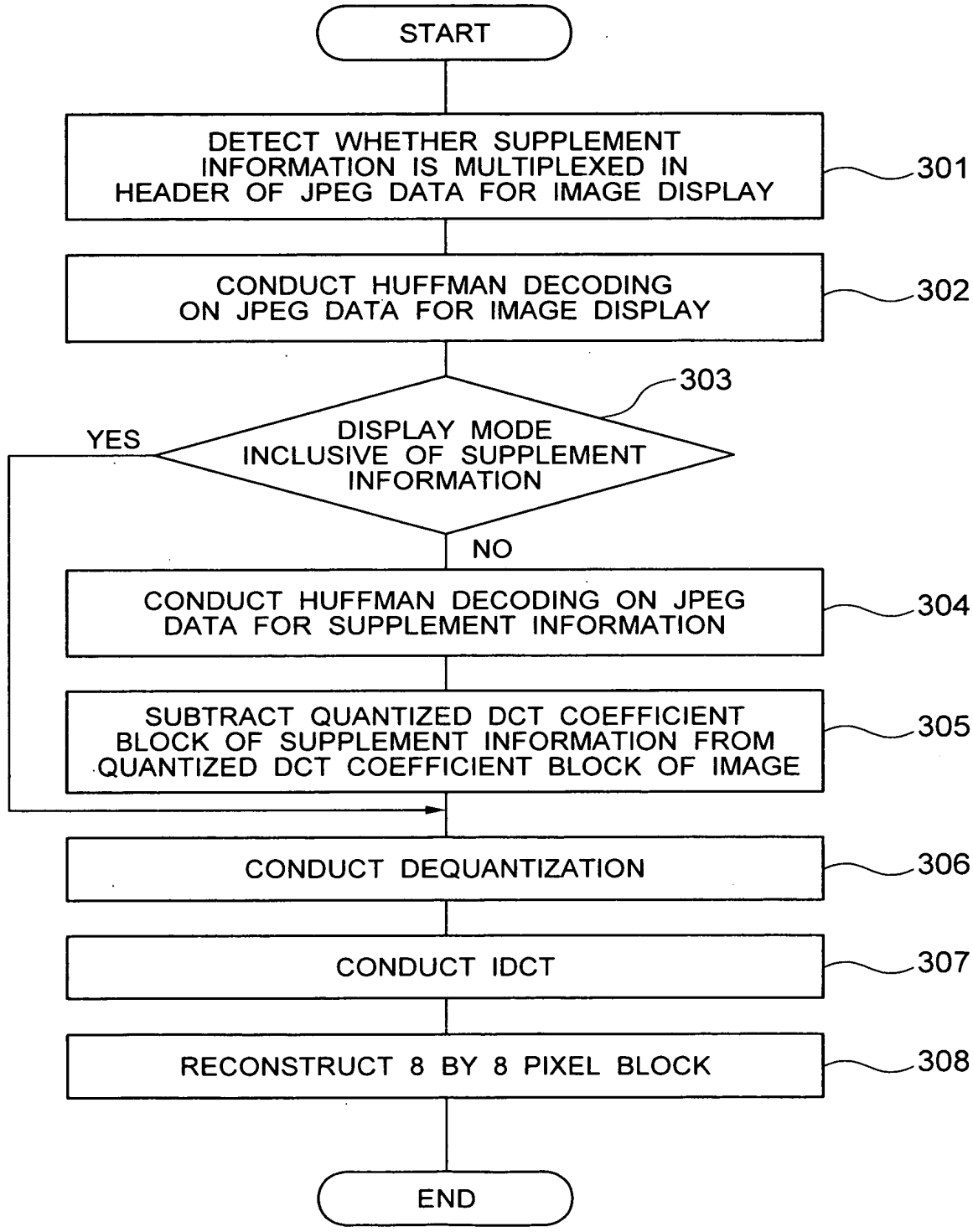

START
DETECT WHETHER SUPPLEMENT INFORMATION IS MULTIPLEXED IN HEADER OF JPEG DATA FOR IMAGE DISPLAY
301
CONDUCT HUFFMAN DECODING ON JPEG DATA FOR IMAGE DISPLAY
302
303
DISPLAY MODE INCLUSIVE OF SUPPLEMENT INFORMATION
YES
NO
CONDUCT HUFFMAN DECODING ON JPEG DATA FOR SUPPLEMENT INFORMATION
304
SUBTRACT QUANTIZED DCT COEFFICIENT BLOCK OF SUPPLEMENT INFORMATION FROM QUANTIZED DCT COEFFICIENT BLOCK OF IMAGE
305
CONDUCT DEQUANTIZATION
306
CONDUCT IDCT
307
RECONSTRUCT 8 BY 8 PIXEL BLOCK
308
END

FIG. 8

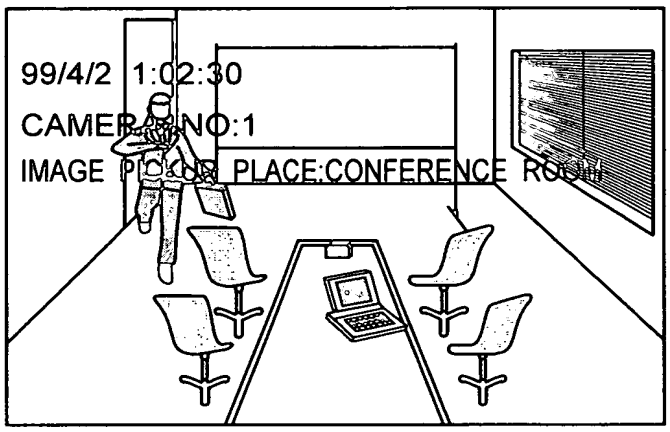


FIG. 9

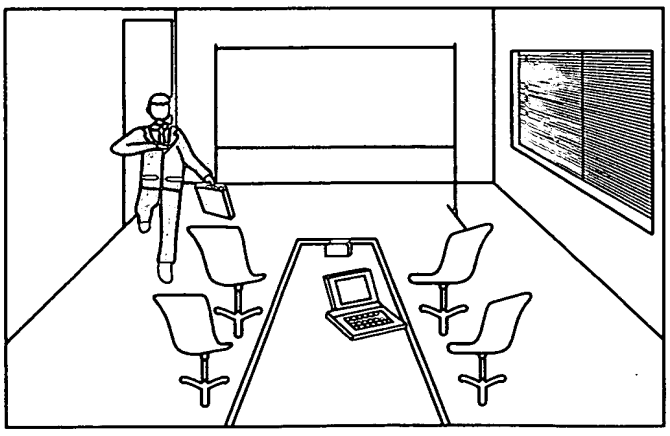


FIG. 10A

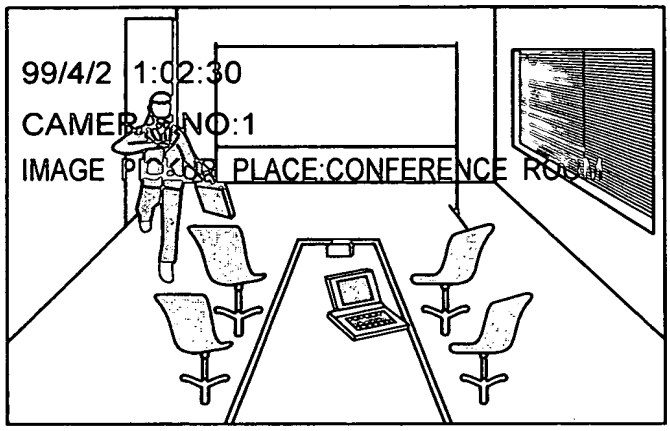


FIG. 10B

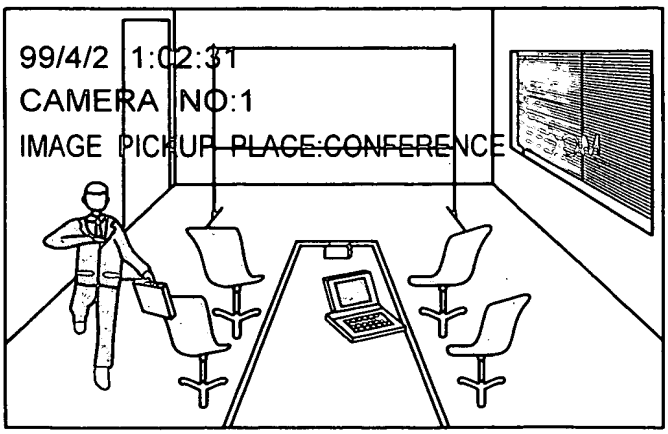


FIG. 11

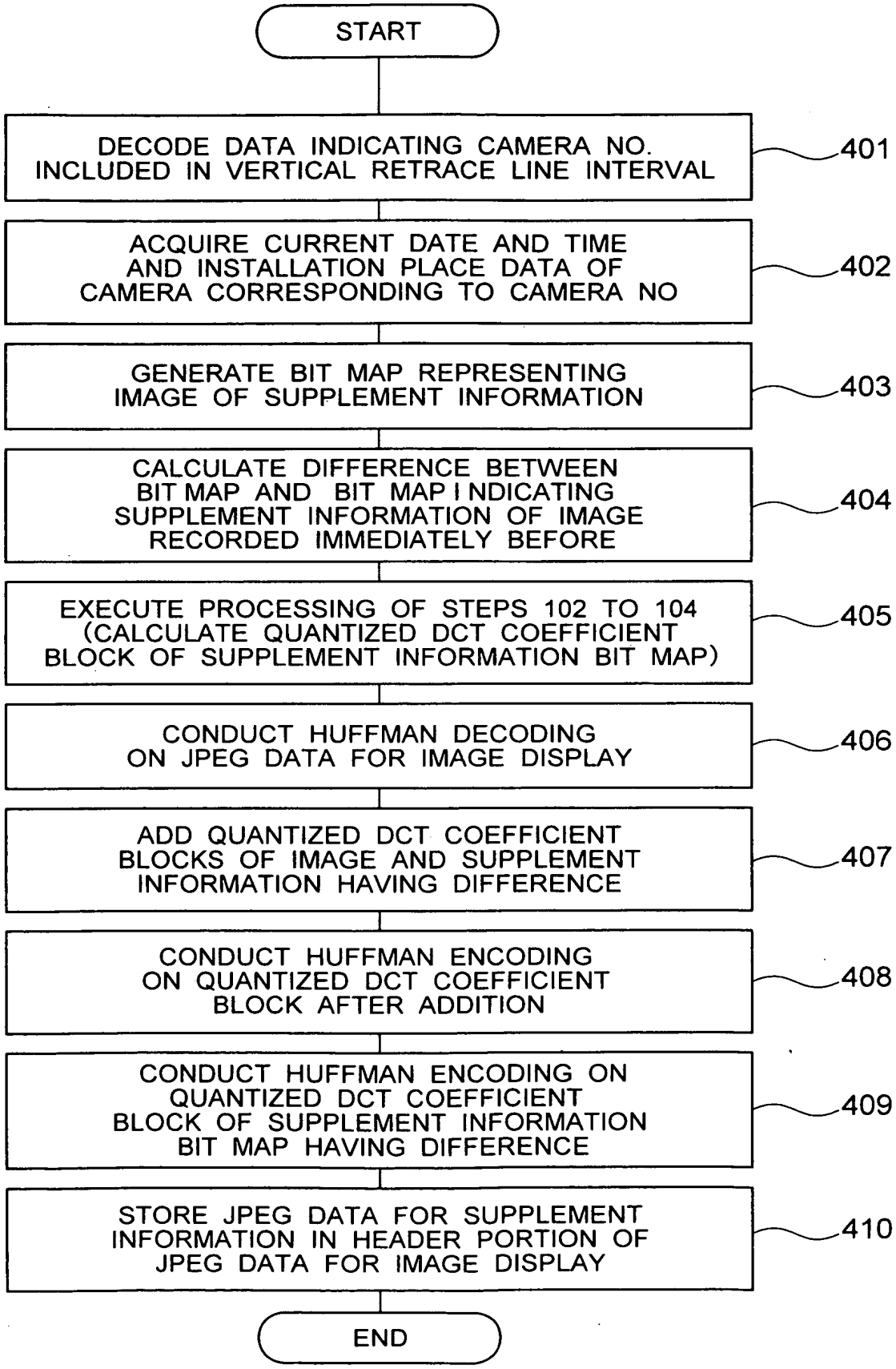

START
DECODE DATA INDICATING CAMERA NO. INCLUDED IN VERTICAL RETRACE LINE INTERVAL
401
ACQUIRE CURRENT DATE AND TIME AND INSTALLATION PLACE DATA OF CAMERA CORRESPONDING TO CAMERA NO
402
GENERATE BIT MAP REPRESENTING IMAGE OF SUPPLEMENT INFORMATION
403
CALCULATE DIFFERENCE BETWEEN BIT MAP AND BIT MAP INDICATING SUPPLEMENT INFORMATION OF IMAGE RECORDED IMMEDIATELY BEFORE
404
EXECUTE PROCESSING OF STEPS 102 TO 104 (CALCULATE QUANTIZED DCT COEFFICIENT BLOCK OF SUPPLEMENT INFORMATION BIT MAP)
405
CONDUCT HUFFMAN DECODING ON JPEG DATA FOR IMAGE DISPLAY
406
ADD QUANTIZED DCT COEFFICIENT BLOCKS OF IMAGE AND SUPPLEMENT INFORMATION HAVING DIFFERENCE
407
CONDUCT HUFFMAN ENCODING ON QUANTIZED DCT COEFFICIENT BLOCK AFTER ADDITION
408
CONDUCT HUFFMAN ENCODING ON QUANTIZED DCT COEFFICIENT BLOCK OF SUPPLEMENT INFORMATION BIT MAP HAVING DIFFERENCE
409
STORE JPEG DATA FOR SUPPLEMENT INFORMATION IN HEADER PORTION OF JPEG DATA FOR IMAGE DISPLAY
410
END

FIG. 12

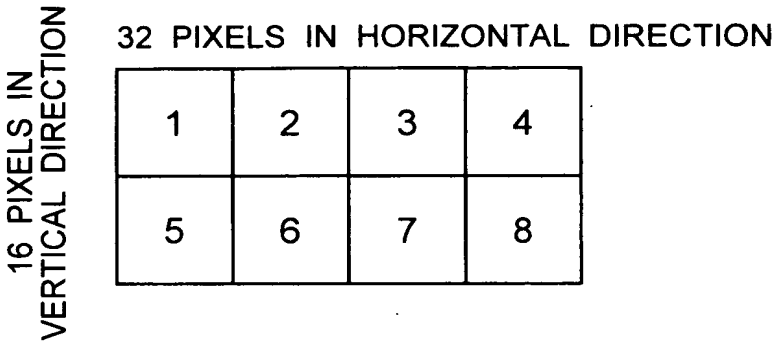


FIG. 13 A

1a	2a	3a	4a
5a	6a	7a	8a

FIG. 13 B

1b	2b	3b	4b
5b	6b	7b	8b

FIG. 13 C

1c	2c	3c	4c
5c	6c	7c	8c

FIG. 14

FIG. 15

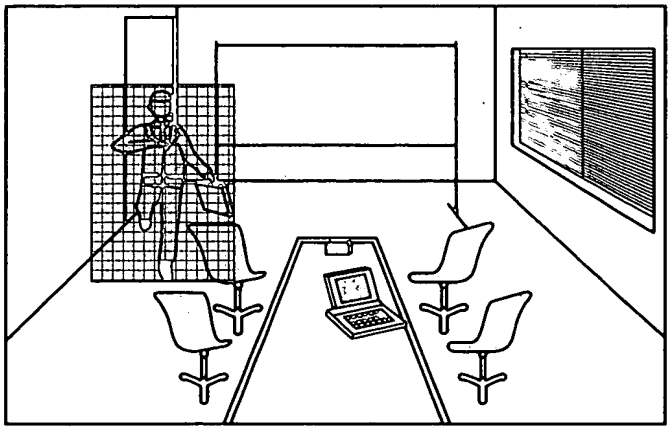


FIG. 16

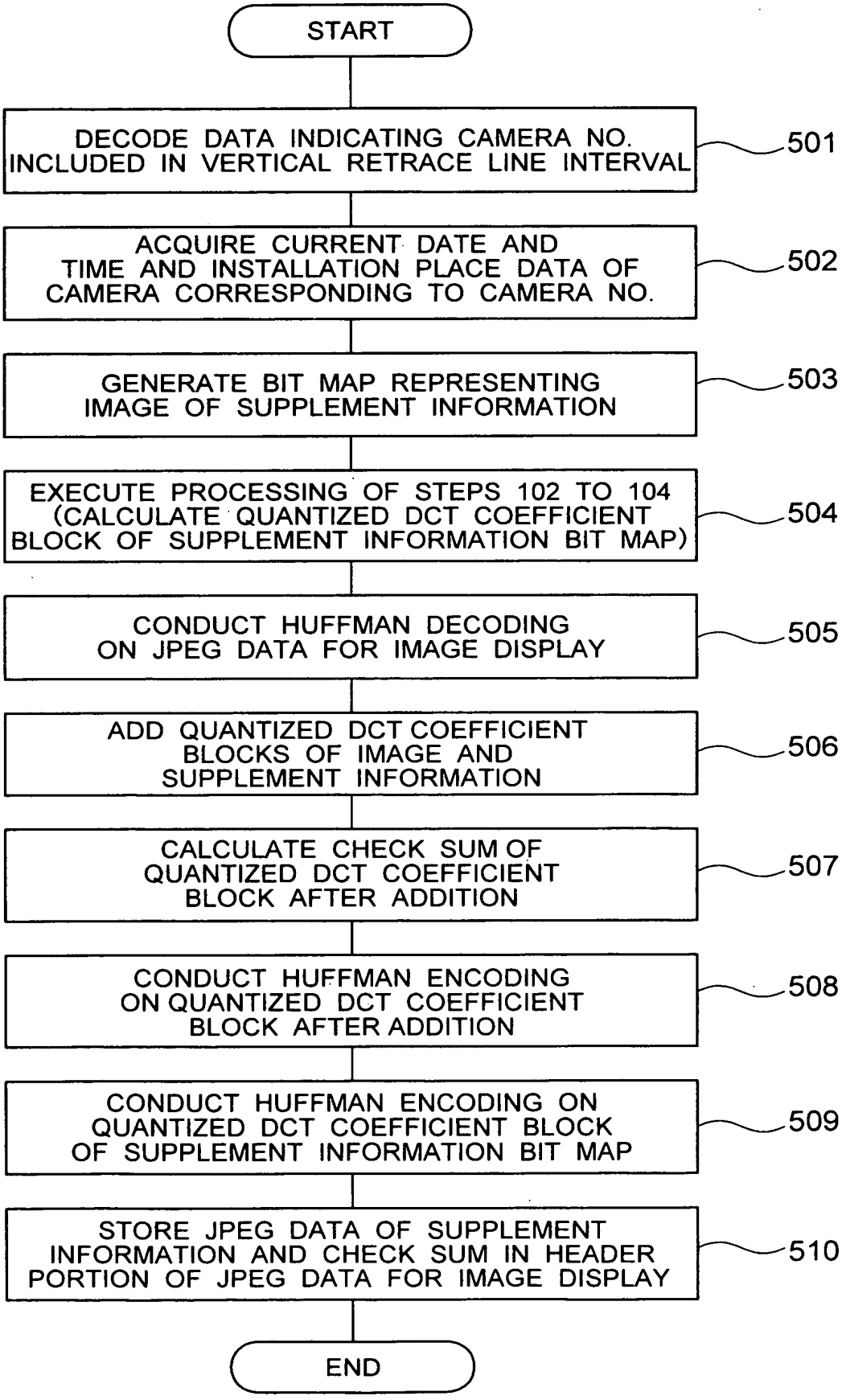
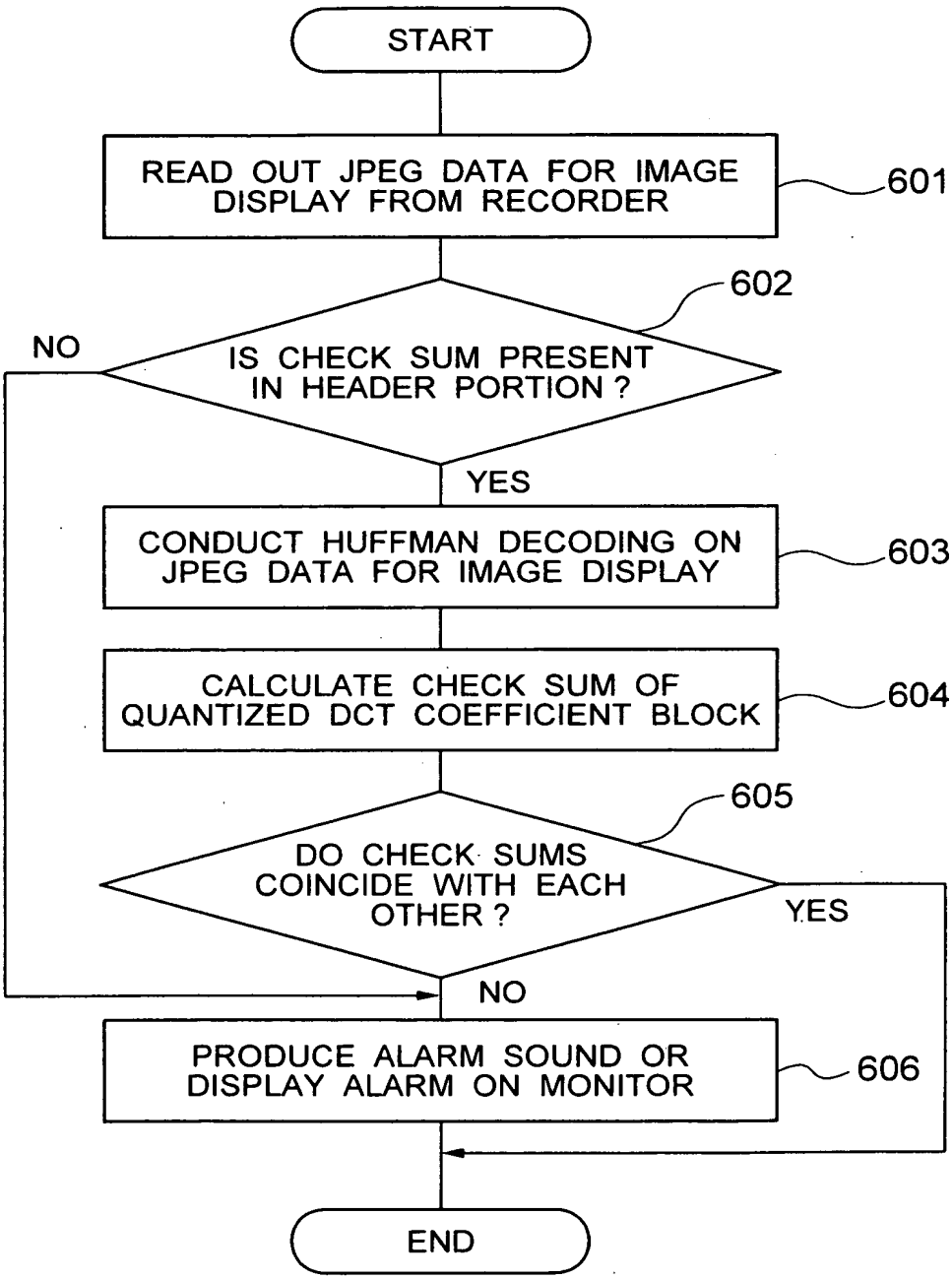

START
DECODE DATA INDICATING CAMERA NO. INCLUDED IN VERTICAL RETRACE LINE INTERVAL
501
ACQUIRE CURRENT DATE AND TIME AND INSTALLATION PLACE DATA OF CAMERA CORRESPONDING TO CAMERA NO.
502
GENERATE BIT MAP REPRESENTING IMAGE OF SUPPLEMENT INFORMATION
503
EXECUTE PROCESSING OF STEPS 102 TO 104 (CALCULATE QUANTIZED DCT COEFFICIENT BLOCK OF SUPPLEMENT INFORMATION BIT MAP)
504
CONDUCT HUFFMAN DECODING ON JPEG DATA FOR IMAGE DISPLAY
505
ADD QUANTIZED DCT COEFFICIENT BLOCKS OF IMAGE AND SUPPLEMENT INFORMATION
506
CALCULATE CHECK SUM OF QUANTIZED DCT COEFFICIENT BLOCK AFTER ADDITION
507
CONDUCT HUFFMAN ENCODING ON QUANTIZED DCT COEFFICIENT BLOCK AFTER ADDITION
508
CONDUCT HUFFMAN ENCODING ON QUANTIZED DCT COEFFICIENT BLOCK OF SUPPLEMENT INFORMATION BIT MAP
509
STORE JPEG DATA OF SUPPLEMENT INFORMATION AND CHECK SUM IN HEADER PORTION OF JPEG DATA FOR IMAGE DISPLAY
510
END

FIG. 17


START
READ OUT JPEG DATA FOR IMAGE DISPLAY FROM RECORDER
601
602
IS CHECK SUM PRESENT IN HEADER PORTION ?
NO
YES
CONDUCT HUFFMAN DECODING ON JPEG DATA FOR IMAGE DISPLAY
603
CALCULATE CHECK SUM OF QUANTIZED DCT COEFFICIENT BLOCK
604
605
DO CHECK SUMS COINCIDE WITH EACH OTHER ?
YES
NO
PRODUCE ALARM SOUND OR DISPLAY ALARM ON MONITOR
606
END